

REMARKS

Examination on the merits is respectfully requested in light of the foregoing amendments and following remarks. The amendments are made without disclaimer or prejudice to pursuing any deleted subject matter in a continuing application.

1. Status of the Claims

Claims 1-8, 21-32, and 39 stand pending. Claims 1-8, 21-32, and 39 stand rejected.

Upon entry of the present amendments, Applicants amend claims 1-5, 21, and 39 to more precisely recite the claimed subject matter. Additionally, claim 40 stands newly introduced, while claim 22 stands canceled. The subject matter of claim 22 is now recited in claim 21. Support of the amendments can be found at least, for example, from the original claims. For example, support for the new claim 40 can be found on page 16, lines 19-20; page 17, lines 23-24 and 27; and page 18, line 2 of the Specification. Applicants submit that no prohibited new matter is introduced by entry of the present amendments.

Cancellation of and amendments to the claims have been made without prejudice to or disclaimer of the subject matter contained therein. Applicants reserve the right to file a continuation and/or divisional on any subject matter canceled by way of amendment.

2. Acknowledgement of Certified Priority Documents

No indication has been made as to the certified priority documents filed on April 8, 2005. Acknowledgement is requested with the Office's next communication.

3. Acceptance of Drawing

No indication has been made as to the acceptance of the drawings as filed. Applicants respectfully request the status with the Office's next communication.

4. Acknowledgement of Information Disclosure Statements

Applicants note with appreciation the acknowledgement of the Information Disclosure Statements (IDS's) filed October 31, 2008; February 16, 2006; and April 8, 2005. Applicants

note that a new IDS is being supplied herewith. Applicants respectfully request acknowledgement of its PTO-1449 with the Office's next communication.

The Office newly cites WO 99/52841 in the PTO-892 form. For the record, Applicants note that WO 99/52841 corresponds to U.S. Patent No. 6,331,320, which had been cited in the IDS filed on February 16, 2006.

5. **Rejection of the Claims Under 35 U.S.C. § 102(b)**

The Office rejects claims 1-2, 4-8, 21-25, 29, 32, and 39 under 35 U.S.C. § 102(b) as allegedly being anticipated by **Nakahara** et al. WO 99/52841[hereinafter "Nakahara"]. The Office actually relies upon U.S. Patent No. 6,331,320 as the translation of Nakahara. Nakahara allegedly discloses a method of producing aromatic compounds by treating plant materials with supercritical or subcritical water. Quoting the portion of Nakahara describing features of a supercritical fluid (col. 3, lines 13-26), the Office appears to allege that Nakahara teaches a high-temperature and high-pressure treatment as recited in the rejected claims. Office Action, pages 2-3.

Applicants respectfully traverse the rejections to the extent they apply to the amended claims. For prior art to anticipate a claim, it must disclose each and every element of the claim explicitly or inherently. *See In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). Upon entry of the present amendments, claims 1-2, 4-8, 21-25, 29, 32, and 39 stand novel over Nakahara.

5.1. **Rejection of Claims 1, 4-5, 32, and 39**

The Office rejects claims 1, 4-5, 32, and 39 as allegedly anticipated, asserting that "Nakahara et al disclose[s] anaerobic state meaning absence of oxygen, therefore Nakahara et al meets the oxygen concentration limitation." Office Action, page 3.

Applicants traverse the rejection to the extent it applies to the claims as amended. Amended claims 1, 21, 39, and their dependent claims, recite a method of processing a plant or a processed material with **a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa**. Nakahara, at best, discloses a method of extracting aromatic compounds by treating plant materials with **supercritical or subcritical water**. Nakahara fails to teach at least one

recited claim element. Accordingly, claims 1, 4-5, 32, and 39 as amended are novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claims 1, 4-5, 32, and 39.

5.2. Rejection of Claims 2 and 22-23

The Office rejects claims 2 and 22-23 as anticipated, because Nakahara allegedly discloses a treatment time that is within about 30 minutes or within about 2 minutes (col. 4, lines 22-23). In addition, Nakahara allegedly teaches that the treatment is performed with water (1) at a temperature of about 374°C with a pressure of 221 atmospheres (22.4 MPa) or more; (2) at a temperature of about 500°C with a pressure of 300 atmospheres (30.4 MPa) or more; or (3) at a temperature exceeding about 300°C with a pressure exceeding 150 to 200 atmospheres (15.2 to 20.3 MPa) (col. 4, lines 15-21). The Office asserts that the disclosed time periods, temperature, and pressure ranges in Nakahara overlap with the recited ranges in the present application. Office Action, page 3.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited in every claim as amended—processing with ***a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa***. According, claims 2 and 23 as amended are novel over Nakahara. Additionally, claim 22 stands canceled upon entry of the present amendments, mooted the rejection. Applicants respectfully request withdrawal of the rejection, and allowance of claims 2 and 23.

5.3. Rejection of Claim 6

The Office rejects claim 6 as anticipated, because Nakahara allegedly discloses that the anaerobic state may be achieved by evacuating or fully purging the inside of the container with an inert gas before processing (col. 4, line 14). Office Action, page 3.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited in every claim as amended—processing with ***a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa***. As the reference does not teach every element of claim 6, it cannot serve to

anticipate the claim. Claim 6 stands novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claim 6.

5.4. Rejection of Claims 7 and 21

The Office rejects claims 7 and 21 as anticipated, because Nakahara allegedly discloses that the recovered aqueous solution may contain lignin (col. 4, lines 61-62). The Office apparently implies that the lignin must have come from the plant material that has been processed. In addition, Nakahara allegedly teaches that vanillin may be obtained by the described process (col. 2, line 49). Office Action, pages 3-4.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited every claim as amended—processing with *a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa*. Accordingly, claims 7 and 21 as amended are novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claims 7 and 21.

5.5. Rejection of Claim 8

The Office refers to “col. 8, lines 58-67” when rejecting claim 8. Office Action, page 4. For record clarity, Applicants submit that the Office must have meant “col. 2, lines 58-67,” because “col. 8, lines 58-67” does not exist.

The Office rejects claim 8 as anticipated, because Nakahara allegedly discloses processing plants such as cherry tree, pine tree, Japanese chestnut tree, maple tree, zelkova tree, and camphor tree (col. 2, lines 58-67). The Office apparently implies that some or all of the above plants contain lignin.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited in every claim as amended—processing with *a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa*. Accordingly, claim 8 is novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claim 8.

5.6. Rejection of Claims 24-25

The Office rejects claims 24-25 as anticipated, because Nakahara allegedly discloses that vanillin-containing compositions may be used as a raw material for food, drink, or liqueur (col. 1, lines 33-35). Office Action, page 4.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited in every claim as amended—processing with *a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa*. Accordingly, claims 24-25 are novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claims 24-25.

5.7. Rejection of Claim 29

The Office rejects claim 26 as anticipated, because Nakahara allegedly discloses exposing the product to a low pressure by cooling the reactor and opening the reactor after the treatment (col. 4, lines 34-38). Office Action, page 4.

Applicants traverse the rejection to the extent it applies to the claims as amended. As discussed in Section 5.1. *supra*, Nakahara fails to disclose at least one element recited in every claim as amended—processing with *a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa*. Accordingly, claim 29 is novel over Nakahara. Applicants respectfully request withdrawal of the rejection and allowance of claim 29.

5.8. New Claim 40

New claim 40 depends upon claim 1, which stands novel over Nakahara. *See* Section 5.1. *supra*. Accordingly, claim 40 is patentable over the cited art.

In view of the above arguments, Applicants respectfully request withdrawal of the anticipation rejection and allowance of the claims.

6. Rejection of the Claims Under 35 U.S.C. § 103(a)

6.1. Rejection relying on Nakahara

The Office rejects claims 3, 28, and 30-31 under 35 U.S.C. § 103(a) as allegedly unpatentable over Nakahara.

Applicants respectfully traverse the rejection to the extent it applies to the amended claims. A finding of obviousness under 35 U.S.C. § 103 requires a determination of the scope and content of the prior art, the differences between the invention and the prior art, the level of ordinary skill in the art, and whether the differences are such that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). These principles have recently been reaffirmed by the Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (2007). Both the suggestion of the claimed invention and the expectation of success must be in the prior art, not in the disclosure of the claimed invention. *In re Dow Chem. Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988). Additionally, "obviousness requires a suggestion of *all* limitations in a claim." *CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342, 68 U.S.P.Q.2d 1940, 1947 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974) (emphasis added)). Furthermore, one common inquiry in the above tests of obviousness is whether an ordinarily skilled in the art would have reasonable expectation of success to practice the claimed invention. *Examination Guidelines for Determining Obviousness under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg. 57,528.

6.1.1. Rejection of Claim 3

The Office rejects claim 3 as obvious. The Office admits that Nakahara does not disclose the temperature range as recited in claim 3 (160-250°C). Office Action, page 5. The Office asserts that a skilled artisan would have been motivated to modify the temperature based on the solvent, pressure, and other conditions. *Id.*

Nakahara discloses employing subcritical water at a temperature exceeding about 300°C (col. 4, lines 19-21). Claim 3 as amended recites extracting with a high-temperature and high pressure *gas*, neither of which is taught. Additionally, the temperature range recited in claim 3,

160 to 250°C, is outside the range taught in Nakahara. As Nakahara fails to suggest all elements of claim 3, it cannot render claim 3 obvious. *See CFMT*, 349 F.3d at 1342, 68 U.S.P.Q.2d at 1947; *Royka* 490 F.2d at 985, 180 U.S.P.Q. at 583.

Accordingly, the Office fails to adduce a *prima facie* case of obviousness. Applicants respectfully request withdrawal of the obviousness rejection and allowance of claim 3.

6.1.2. Rejection of Claim 28

The Office rejects claim 28 as allegedly obvious. The Office admits that Nakahara does not disclose the quantification/characteristic of the vanillin obtained. Office Action, page 5. The Office apparently makes the rejection based on inherency. The Office alleges that a skilled artisan would have recognized such quantification/characteristic, because Nakahara and the present claims employ the same methods on the same starting materials. *Id.*

Applicants traverse. First, if an explicit suggestion or teaching is missing from a reference, it cannot be supplied by an inherent feature to support an obviousness rejection. *In re Sernaker*, 702 F.2d 989, 217 U.S.P.Q. 1 (Fed. Cir. 1983). The Office thus improperly employs inherency in the obviousness rejection. Additionally, upon entry of the present amendments, claim 28 recites a method using ***a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa***. As Nakahara fails to teach or suggest all claim elements of claim 28, it cannot render claim 28 obvious. *See CFMT*, 349 F.3d at 1342, 68 U.S.P.Q.2d at 1947; *Royka* 490 F.2d at 985, 180 U.S.P.Q. at 583.

Accordingly, the Office fails to adduce a *prima facie* case of obviousness. Applicants respectfully request withdrawal of the rejection and allowance of claim 28.

6.1.3. Rejection of Claims 30-31

The Office rejects claims 30-31 as purportedly obviousness. The Office asserts that “vanillin production using extruders in order to produce particular shape of the vanillin product was well known in the art.” Office Action, page 6. The Office apparently admits that Nakahara does not teach employing extruder and particular shape of the vanillin product. Nevertheless, the Office concludes that one skilled artisan would have been motivated to use extruder to produce a particular shape of the vanillin product.

Upon entry of the present amendments, claims 30-31 recites extracting with a high-temperature and high pressure **gas**. Nakahara as the sole § 103 reference fails to suggest all elements of either claim 30 or 31. *See CFMT*, 349 F.3d at 1342, 68 U.S.P.Q.2d at 1947; *Royka* 490 F.2d at 985, 180 U.S.P.Q. at 583. Claims 30-31 are non-obvious over the cited art.

Accordingly, no *prima facie* case of obviousness can be adduced as to the amended claims. Applicants respectfully request withdrawal of the rejection and allowance of claims 30-31.

6.1.4. New Claim 40

New claim 40, which depends on claim 1, also requires using **a gas having a temperature of 160 to 250°C and a pressure of 0.25 to 4.5 MPa**. Thus, claim 40, like claim 1, stands free from the cited art. *See* Section 6.1.1. *supra*.

6.2. Rejection relying on Nakahara and Ono

6.2.1. Rejection of claims 26-27

The Office further rejects claims 26-27 under 35 U.S.C. § 103(a) as allegedly unpatentable over Nakahara and further in view of **Ono** et al., U.S. Patent No. 5,460,836 [hereinafter “Ono”].

The Office admits that Nakahara does not disclose malt as a plant material for the described process. Office Action, page 6. In addition, Nakahara fails to disclose processing grain as the lignin-containing material. Ono allegedly teaches (1) processing malt through supercritical or subcritical carbon dioxide, and (2) brewing beer with superior properties from the processed malt. The Office asserts that the advantages of Ono’s process would have motivated a skilled artisan to combine Nakahara and Ono, *i.e.*, by modifying Nakahara to employ malt as a raw material. *Id.*

Applicants traverse to the extent the rejection is applied to claims 26-27 as amended. Claims 26-27 now recite processing with **a gas having a temperature of 140 to 500°C and a pressure of 0.1 to 100 MPa**. Ono does not teach or suggest employing such a gas. Thus, Ono fails to cure the defect of Nakahara. *See* Section 6.1.1. *supra*. The Office improperly relies on Nakahara and Ono, because the combined references fail to suggest all elements in either claim

30 or 31. *See CFMT*, 349 F.3d at 1342, 68 U.S.P.Q.2d at 1947; *Royka* 490 F.2d at 985, 180 U.S.P.Q. at 583.

Accordingly, no *prima facie* case of obviousness can be adduced for the claims as amended. Applicants respectfully request withdrawal of the rejection, and allowance of claims 26-27.

6.2.2. New Claim 40

New claim 40, which depends from claim 1, recites using *a gas having a temperature of 160 to 250°C and a pressure of 0.25 to 4.5 MPa*. Neither Nakahara nor Ono teaches or suggests employing such a gas. *See* Sections 6.1.1. and 6.2.1. *supra*. Thus, claim 40 is nonobvious and patentable.

Accordingly, the presently amended claims are patentable in view of Nakahara alone, or Nakahara combined with Ono. Applicants respectfully request withdrawal of the rejection and allowance of claims.

CONCLUSION

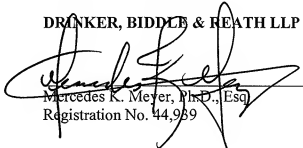
Should the Examiner have any questions or comments regarding Applicants' amendments or response, please contact Applicants' undersigned representative at (202) 842-8821. Furthermore, please direct all correspondence to the below-listed address.

In the event that the Office believes that there are fees outstanding in the above-referenced matter and for purposes of maintaining pendency of the application, the Office is authorized to charge the outstanding fees to Deposit Account No. 50-0573. The Office is likewise authorized to credit any overpayment to the same Deposit Account Number.

Respectfully submitted,

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